

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for stitching using a stitching apparatus, comprising:

determining information related to at least a first stitch to be stitched using said stitching apparatus, said determining including:

5 providing a first stitch angle and a first stitch length; and
 calculating a feed length using at least said first stitch angle and said first
stitch length;

obtaining tension data; and

controlling stitching of said first stitch using said tension data.

2. Canceled.

3. (Currently Amended) A method, as claimed in Claim 1, wherein for stitching
using a stitching apparatus, comprising:

5 determining information related to at least a first stitch to be stitched using said
stitching apparatus, said determining step includes calculating a number of stitches crossed
by said first stitch;

obtaining tension data; and

controlling stitching of said first stitch using said tension data.

4. (Currently Amended) A method, as claimed in Claim 1, wherein for stitching
using a stitching apparatus, comprising:

5 determining information related to at least a first stitch to be stitched using said
stitching apparatus, said determining step includes calculating additional thread using a
number of stitches crossed by said first stitch and a nominal stitch length;

obtaining tension data; and

controlling stitching of said first stitch using said tension data.

5. (Currently Amended) A method, as claimed in Claim 1, wherein:
said determining step includes adding additional thread to a thread length related to said first stitch.

6. (Currently Amended) A method, as claimed in Claim 1, wherein:
said determining step includes adding overlapping thread to a thread length related to said first stitch.

7. (Currently Amended) A method, ~~as claimed in Claim 1, wherein~~ for stitching using a stitching apparatus, comprising:
determining information related to at least a first stitch to be stitched using said stitching apparatus, said determining step includes adding to a thread length related to said
5 first stitch based on a thickness of a fabric to be stitched using said first stitch;
obtaining tension data; and
controlling stitching of said first stitch using said tension data.

8. (Currently Amended) A method, ~~as claimed in Claim 1, wherein~~ for stitching using a stitching apparatus, comprising:
determining information related to at least a first stitch to be stitched using said stitching apparatus, said determining step includes adding an amount to a thread length
5 related to said first stitch based on an applique layer;
obtaining tension data; and
controlling stitching of said first stitch using said tension data.

9. (Currently Amended) A method, as claimed in Claim 1, wherein:
said obtaining step includes acquiring data related to a tension profile using at least a first sensor that detects movement.

10. (Original) A method, as claimed in Claim 9, wherein:
said movement is caused by changing of thread tension.

11. (Currently Amended) A method, ~~as claimed in Claim 1, wherein said obtaining step includes for stitching using a stitching apparatus, comprising:~~

determining information related to at least a first stitch to be stitched using said stitching apparatus;

5 obtaining tension data, said obtaining including:

checking whether a stitching cycle is completed; and

processing data related to a tension profile when said stitching cycle is completed; and

controlling stitching of said first stitch using said tension data.

12. (Currently Amended) A method, as claimed in Claim 1, wherein said obtaining step includes:

acquiring data related to a tension profile obtained using at least a first sensor; and

5 ascertaining said tension data using said data related to said tension profile and reference data.

13. (Currently Amended) A method, as claimed in Claim 1, wherein:
said controlling step includes stopping said stitching apparatus related to a thread break based on said tension data.

14. (Currently Amended) A method, ~~as claimed in Claim 1, wherein for stitching using a stitching apparatus, comprising:~~

determining information related to at least a first stitch to be stitched using said stitching apparatus;

5 obtaining tension data; and

controlling stitching of said first stitch using said tension data, said controlling step includes controlling feed length related to said first stitch using said tension data.

15. (Currently Amended) A method, as claimed in Claim 14, wherein:
said controlling step includes one of: increasing feed length associated with said first stitch and decreasing feed length associated with said first stitch based on said tension data.

16. (Currently Amended) A method, ~~as claimed in Claim 1, wherein~~ for stitching using a stitching apparatus, comprising:
determining information related to at least a first stitch to be stitched using said stitching apparatus;
5 obtaining tension data; and
controlling stitching of said first stitch using said tension data, said controlling step includes controlling at least a first active thread feeder.

17. (Currently Amended) A method, as claimed in Claim 16, wherein:
said controlling step includes controlling a position related to said first active thread feeder.

18. (Currently Amended) A method, as claimed in Claim 17, wherein:
said controlling step includes causing a motor to be activated for driving said first active thread feeder.

19. (Currently Amended) A method, as claimed in Claim 17, wherein:
said controlling step includes aligning said first active thread feeder to be responsive to activation of a motor.

20. (Currently Amended) A method, as claimed in Claim 1, wherein:
said controlling step includes discontinuing thread feed during at least a portion of a stitching cycle related to stitching said first stitch.

21-34. Canceled.

35. (Currently Amended) A stitching apparatus, comprising:
at least a first thread; ~~wherein said first thread that is operatively associated with a~~
first active thread feeder which includes at least a first gear and in which said first gear
receives an aligner related to aligning said first gear in operative association with a motor;
5 at least a first thread sensor that outputs information related to thread tension; and
a control that controls at least said first thread using said information and includes
at least a first controller.

36-37. Canceled

38. (Original) A stitching apparatus, as claimed in Claim 36, wherein:
said motor is selectively operatively associated with a number of active thread feeders
including said first active thread feeder.

39. (Currently Amended) A stitching apparatus, as claimed in Claim 36, wherein:
at least portions of said first active thread feeder are movable relative to said motor.

40. (Currently Amended) A stitching apparatus, as claimed in Claim 35, wherein:
~~said first thread is operatively associated with a first active thread feeder and said first~~
controller controls activation of said first active thread feeder using said motor.

41. Canceled.

42. (Currently Amended) A stitching apparatus, ~~claimed in Claim 35, further~~
~~including~~ comprising:
at least a first thread;
at least a first thread sensor that outputs information related to thread tension;
5 a control that controls at least said first thread using said information and includes
at least a first controller; and

a second thread sensor that outputs data related to thread tension, said first thread including upper thread and lower thread and in which said first and second thread sensors are disposed more adjacent to said upper thread than to said lower thread.

43. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control includes a thread sensor controller and said first thread sensor is operatively associated with a thread break detection circuit which is operatively associated with at least said first controller.

44. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said first thread includes an upper thread and a lower thread and in which said data related to thread tension is used in determining whether an upper thread break or a lower thread break has occurred when a thread break occurs.

45. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

each of said first thread and said first thread sensor is operatively associated with a thread contact element that moves based on said thread tension.

46. (Currently Amended) A stitching apparatus, ~~as claimed in Claim 35,~~ wherein comprising:

at least a first thread;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes at least a first controller, said control determines a feed length for at least a first stitch using at least a first stitch angle and a first stitch length.

47. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control determines a number of stitches crossed by at least a first stitch.

48. (Currently Amended) A stitching apparatus, ~~as claimed in Claim 47, wherein~~
comprising:

at least a first thread;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes
at least a first controller, wherein said control determines a number of stitches crossed by at
least a first stitch and ascertains additional thread using said number of stitches crossed and
a nominal length related to said first stitch.

49. (Original) A stitching apparatus, as claimed in Claim 48, wherein:

said first controller includes a main controller and said control includes a host
controller in communication with said main controller and in which said host controller
determines said additional thread and said number of stitches crossed.

50. (Currently Amended) A stitching apparatus, ~~as claimed in Claim 35, wherein~~
comprising:

at least a said first thread that has a first thread length associated therewith;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes
at least a first controller and in which said control adds to said thread length based on at least
one of the following: overlapping thread, thickness of fabric, and use of applique layer.

51. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control obtains and stores a tension profile using said information related to
thread tension.

52. (Original) A stitching apparatus, as claimed in Claim 51, wherein:

said control determines tension data using said tension profile and reference
information.

35. (Currently Amended) A stitching apparatus, comprising:
at least a first thread, ~~wherein said first thread that is operatively associated with a~~
first active thread feeder which includes at least a first gear and in which said first gear
receives an aligner related to aligning said first gear in operative association with a motor;
5 at least a first thread sensor that outputs information related to thread tension; and
a control that controls at least said first thread using said information and includes
at least a first controller.

36-37. Canceled

38. (Original) A stitching apparatus, as claimed in Claim 36, wherein:
said motor is selectively operatively associated with a number of active thread feeders
including said first active thread feeder.

39. (Currently Amended) A stitching apparatus, as claimed in Claim 36, wherein:
at least portions of said first active thread feeder are movable relative to said motor.

40. (Currently Amended) A stitching apparatus, as claimed in Claim 35, wherein:
~~said first thread is operatively associated with a first active thread feeder and said first~~
controller controls activation of said first active thread feeder using said motor.

41. Canceled.

42. (Currently Amended) A stitching apparatus, ~~claimed in Claim 35, further~~
including comprising:

- at least a first thread;
at least a first thread sensor that outputs information related to thread tension;
5 a control that controls at least said first thread using said information and includes
at least a first controller; and

a second thread sensor that outputs data related to thread tension, said first thread including upper thread and lower thread and in which said first and second thread sensors are disposed more adjacent to said upper thread than to said lower thread.

43. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control includes a thread sensor controller and said first thread sensor is operatively associated with a thread break detection circuit which is operatively associated with at least said first controller.

44. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said first thread includes an upper thread and a lower thread and in which said data related to thread tension is used in determining whether an upper thread break or a lower thread break has occurred when a thread break occurs.

45. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

each of said first thread and said first thread sensor is operatively associated with a thread contact element that moves based on said thread tension.

46. (Currently Amended) A stitching apparatus, as claimed in Claim 35, wherein comprising:

at least a first thread;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes at least a first controller, said control determines a feed length for at least a first stitch using at least a first stitch angle and a first stitch length.

47. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control determines a number of stitches crossed by at least a first stitch.

48. (Currently Amended) A stitching apparatus, ~~as claimed in Claim 47~~, wherein comprising:

at least a first thread;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes
at least a first controller, wherein said control determines a number of stitches crossed by at
least a first stitch and ascertains additional thread using said number of stitches crossed and
a nominal length related to said first stitch.

49. (Original) A stitching apparatus, as claimed in Claim 48, wherein:

said first controller includes a main controller and said control includes a host controller in communication with said main controller and in which said host controller determines said additional thread and said number of stitches crossed.

50. (Currently Amended) A stitching apparatus, ~~as claimed in Claim 35~~, wherein comprising:

at least a said first thread that has a first thread length associated therewith;

at least a first thread sensor that outputs information related to thread tension; and

5 a control that controls at least said first thread using said information and includes
at least a first controller and in which said control adds to said thread length based on at least
one of the following: overlapping thread, thickness of fabric, and use of applique layer.

51. (Original) A stitching apparatus, as claimed in Claim 35, wherein:

said control obtains and stores a tension profile using said information related to thread tension.

52. (Original) A stitching apparatus, as claimed in Claim 51, wherein:

said control determines tension data using said tension profile and reference information.

53. (Original) A stitching apparatus, as claimed in Claim 52, wherein:
said control includes a thread sensor controller used to store said tension profile and
to determine said tension data.

54-68. Canceled.